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Discussion of  
“Analysts’ Belief Formation in Their Own Words”  
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# Summary

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- ❖ This paper uses text data from analyst reports to study belief formation & misreaction
  - ❖ Main findings:
    1. Variation in topic focus / attention
    2. Differential misreaction to different information using instrumented CG regression
      - ❖ More overreaction to more qualitative topics (R&D, marketing, ...)
    3. Mechanisms behind misreaction
- ❖ My discussion: where I see this literature goes and how this paper fits + more specific comments

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# Towards a structure of mental models & belief misreaction

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- ❖ How do people translate news into beliefs? How do we know?
  - ❖ Eliciting reasoning using surveys: Stantcheva ('21, 23), Andre et al. ('22, 24, 25), Chopra-Haaland ('24), Bauer et al. ('24)
  - ❖ Theory-guided empirics from structured survey data: Wu ('23), Mei-Wu ('25)
  - ❖ Extracting from unstructured text data: Bastianello-Décaire-Guenzel (BDG '25)
- ❖ One comment in my discussion of BDG in SFS Cavalcade 2025 is to show even more structure
  - ❖ This paper makes progress in this direction to bring text data closer to theory

# Using CG regressions to detect misreaction

1. Underreaction to **univariate process** (Coibion-Gorodnichenko CG '15):  $y_{t+1} - E_t[y_{t+1}] = \beta(E_t[y_{t+1}] - E_{t-1}[y_{t+1}]) + c$ 
  - ❖ CG assumes  $y_t = \rho y_{t-1} + \epsilon_t \rightarrow \beta > 0$  means underreaction and maps into theory parameters
  - ❖ PS: CG agents are rational (unpredictable forecast errors using their info set), c.f. individual overreaction (Bordalo-Gennaioli-Ma-Shleifer '20) ...
2. Differential underreaction to **multiple components** (Kohlhas-Walther KW '21):  $y_{t+1} - E_t[y_{t+1}] = \beta(E_t[y_{t+1}] - E_{t-1}[y_{t+1}]) + \gamma y_t + c$ 
  - ❖ KW posits  $y_{t+1} = \sum_i x_{i,t+1}$  with varying cyclicality and agents *differentially underreact* to different components  
→ underreaction to countercyclical component leads to as-if overreaction to current aggregate  $\gamma < 0$
  - ❖ This paper *measures* components as topics (R&D, tax, ...), but some trigger *overreaction* — **which I don't think would happen in KW**
3. Underperceiving **multivariate comovement** (Wu '23, Mei-Wu '25):  $y_{i,t+1} - E_t[y_{i,t+1}] = \beta_{ii}(E_t[y_{i,t+1}] - E_{t-1}[y_{i,t+1}]) + \beta_{ij}(E_t[y_{j,t+1}] - E_{t-1}[y_{j,t+1}]) + c$ 
  - ❖  $\mathbf{y}_t = (i_t, \pi_t, \dots)'$ ,  $\mathbf{y}_t = \mathbf{A}\mathbf{y}_t + \epsilon_t \rightarrow$  cross dependence as equilibrium outcomes,  $\beta_{ij}$  reflects *perceived cross relations*  $\mathbf{A}$
  - ❖ Crucially, *under-perceiving* cross relations can lead to *overreaction to news*, e.g., ignoring equilibrium offset

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# Specific # 1: Putting topic focus to structural test

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- ❖ Paper shows many interesting variations of topics across time / firms
  - ❖ E.g., more focus on firms (M&A, profitability, ...) in good times; more focus on financing (cash, debt, ...)/ macro / risk in bad times; more focus on M&A / business strategies / R&D for growth stocks
  - ❖ Interesting, but hard to differentiate from BDG, Flynn-Sastry ('24), ...
- ❖ Make this part more structural:
  - ❖ Paper shows: analysts pay more attention to more important topics—e.g., analysts talk more about macro when industrial production predicts earnings more strongly
  - ❖ A more informative test: more attention means better forecasts (optimal attention), i.e., smaller errors, CG  $|\beta|$  vs. more overreaction (memory, emotions, ...), i.e., more negative CG  $\beta$

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# Specific #2: What do analysts not react to?

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- ❖ Paper instruments revision in  $y_{t+1} - E_t[y_{t+1}] = \beta(E_t[y_{t+1}] - E_{t-1}[y_{t+1}]) + c$  with different topics
  - ❖ For short-term forecasts, nearly all topics generate underreaction; for long-term forecasts, more overreaction
  - ❖ More overreaction to more qualitative topics (R&D, marketing, ...)
    - ❖ BDG: overreaction to firm-related topics, underreaction to macro topics
- ❖ Clarify a potential misconception: paper calls it instrumented-CG, but we shouldn't restrict attention to IV (with relevance)
  - ❖ If we treat  $y - E_t[y] = \beta(E_t[y] - E_{t-1}[y]) + c$  as a structural relation, then IV makes sense → paper shows almost all topics have strong 1st stage
  - ❖ It is structural in the CG univariate theories, *but not in general* (Kohlhas-Walther '21, Wu '23)
    - ❖ Topics that move outcomes but not beliefs (no relevance) are interesting too
      - ❖ BDG: analysts differ substantially in their topics and topics they omit predict forecast errors
    - ❖ Conversely, it almost has to be the case that topics covered in reports are strong IVs (otherwise, why talking about it?)
    - ❖ A way to measure extent continuously: do beliefs react/misreact *more* to topics that receive *more* attention?

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# Specific #3: Use and limits of mechanism tests

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- ❖ Paper formulates hypotheses for theories of over- / underreaction and tests them
  - ❖ E.g., detect overconfidence with stronger tones / more assertive languages, detect sticky beliefs with more references to past forecasts
- ❖ Clarify the limitation: positives support theories more strongly than negatives reject theories
  - ❖ Some hypotheses are more characteristic of theories than others (e.g., beliefs can be sticky without referencing past)
  - ❖ Caution: sticky info does not generate positive CG  $\beta$  at individual level; testing against underreaction at individual level does not rule out underreaction due to aggregation

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# Conclusion

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- ❖ Overall, I like the paper and the direction it goes
- ❖ It may benefit from
  - ❖ Position more clearly in literature and focus on the structural part
  - ❖ Take theory even more seriously
    - ❖ Not exactly consistent with rational model of limited attention (KW)
    - ❖ Does attention matter for belief misreaction and how?